## AMCICA ON the Rhine. Europe's Historical River as a Trade KEEPING DOWN THE GAS BE

Cologne and Dusseldorf as New Cities-Mannheim and Its American Factories - Queer Features of Municipal Ownership-City Street Cars Which Sell Annual Passes-Rhine Farming and Wine





Cologne is a good place to study the Rhine traffic. It is the headquarters of the leading steamship

The trade is carefully watched. It steadily increases from year to year. and it now approximates a million tons annually.

Something like 4,000 passenger boats call at Cologne every year, and the freight boats number many hun-

There are also salling vessels, and an enormous traffle by tugs and



Special Correspondence of The Sunday Republic.

Cologne, April 14.—I write to-day of the Rhine.

Not the Rhine picturesque, not the Rhine romantic, nor the Rhine of castles and cathedrals, but the Rhine as a trade route and as the great water avenue of the American invasion of Germany.

During this trip in Europe I have studied

so slow that it does not impede navigation.

A little further south the river narrows, and in the Seven Mountains the current is

so swift that the steamers make only a few have to be walled in with stones almost the whole way to keep them from washing. Cologne is the trade center of the Rhine. It has about 400,000 people, and is largely endent upon its river trade.

It has built up a great harbor for han-dling the traffic, and is now a general transshipping point for all parts of Europa. Ships come here from London, Bremen,

Hamburg, Copenhagen and Russia.

There are daily boats to England, and three boats which run regularly between MERCHANDISE FROM UNITED STATES

TRANSSHIPPED AT ROTTERDAM.
The most of the goods from the United States is transshipped at Rotterdam, Am-sterdam, Antwerp or Hamburg, and a large part of it is sent up the Rhine in barges. I have spent much time on the river, now

ican lumber, now going by strings of nar-row barges, each 200 or more feet long, filled with American wheat, and other barges piled high with barrels of American petro-

I have met a few American travelers and one or two of our drummers, but the most of the travel is European, and the most of our goods go on German and Dutch boats handled by German importers handled by German importers.

Cologne is a good place to study the
Rhine traffic. It is the headquarters of the

fly increases from year to year, and it now approximates a million tons annually. Something like 4,600 passenger boats call at Cologne every year, and the freight

boats number many hundreds. There are also sailing vessels, and an anomonous traffic by tugs and barges.

I saw my first Rhine barges at Rotter-

They are built for the narrow parts of boats made, in proportion to their width.

The average burge is about fifteen feet
wide and 200 or 300 feet long. It looks like
a great black eel as it is towed up the

At the back of it is a little cabin, with a ovepipe sticking out of its roof, and about idway is a hinged mast so fixed that it can be raised and lowered at the bridges. Each barge has a rudder, sometimes so large that it is moved by a horizontal cog wheel, pushed around by the sailors. On many of the barges families of boat-

u see the washing hanging on the line. women cooking at the sterns of the ats and the little ones playing about over

THOUSANDS OF TOURISTS

PATRONIZE RHINE STEAMERS. The Rhine has an immense passenger business during the season. This is now at its beginning, and it will continue until

There are two great passenger compa-nies which have regular daily services to Mainz and Cologne and Dusseldorf.

Over sixteen They are doing well, paying regular divi-lends of 6 per cent and over.

Their stocks are considered safe invest-

into the millions of tons. Their stocks are considered safe investments and they are bought and sold on
the exchange.

It is a great commercial center, its banks
I expected to find Rhine wines on the
having a capital of \$86,000,000. It is also a
manufacturing city, making dye stuffs and
ingly dear. The prices rise and fall ac-

COLOGNED THE PHINETRADE CENTERFOR

that makes the boxts pay.
That is enormous, it is true, but it is nothing in comparison with the local tradic.

traffic from London, and a cold season may out down the dividends more than I per cent. There are now about 100 steamboats on the Rhine, and the average number of

and as the great water avenue of the American invasion of Germany.

During this trip in Europe I have studied it from its sources to its mouth.

I was near its beginning on Mount Saint Gothard, in Switzerland. I saw it rushing past Basel, the head of navigation, and the food is quite as good as on similar beats at home.

At I o'clock there is a table d'hote dig.

The defendance of the American and as the great water avenue of the American invasion of Germany.

Cologne was founded about the time that Caesar overran Gaul.

It was so rich as Croesus'' that instead of saying "as rich as Croesus'' that instead of saying is a further saving that comes in the said "as rich as a cloth merchant of Cologne," and it has been an important to be turned off, and in watching your meter reader that he does not turn it on full the color of the caesar overran Gaul.

It was so rich during the Middle Ages in the said "as rich as a cloth merchant of Cologne," and it has been an important to be turned off, and in watching your meter reader that he does not turn it on full the color of the caesar overran Gaul.

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It was so rich during the Middle Ages in the stream of the said of saying is a full that the caesar overran Gaul.

It was so rich as Croesus'' the said "and there is a further saving the the caesar overran Gaul.

It was so rich as croesus'' the said as cloth merchant of the meter valve as founded about the time that the caesar overran Gaul.

It was so rich as croesus'' the said atched the enormous traffic moving into | At 1 o'clock there is a table d'hote dir-

It from Rotterdam, near the sea. Ref. which costs 75 cents with reduce!

It is 525 miles from Basel to the German rates for children. Breakfast and supper ocean, and throughout this distance the are also served.

Bridges connect it with the railroads and the cars are brought right to the boats and loaded and unloaded with great steel | castles. cranes.

can be handled at one time.

As I walked along upon the island I saw

long and ten feet high.

It had been towed up from Rotterdam by a steam tug, and when I saw it the hy-It had been towed up from Rotterdam by a steam tug, and when I saw it the hy-draulle cranes were lifting up a hundred boards at a time and dropping them on to II has a municipal savings bank, with a boards at a time and dropping them on to the cars, which were to take them to the Near by were other barges loading goods

Near by were other barges loading goods for the United States, and I was told that something like two million dollars' worth of goods are annually shipped from here to are just about half what they are in the our country.
Another big Rhine center is Dusseldorf,

about two and one-half hours by steamer down stream. It is the chief port of West-phalia, an enormous industrial region underlaid with coal and iron.

Dusseldorf itself has iron and steel works. foundries, furnaces and rolling mills. It makes railroad cars and electrical equipments and the same is true of Cologne. Dusseldorf is also the port for many other towns nearby, and does a great business in selling American machine tools, Carolina pine and some of our best hardwoods

It takes a great lot of California fruit, and has until recently imported considerable iron and steel tubing, although this is now furnished by Germany.

It is from there that a large part of the Krupp shipments go out, including those to the United States, which are heavy. which are heavy.

MAINZ AND MANNHEIM Up the Rhine above Cologne there are number of important ports, and especially Coblens, Mainz and Mannheim. I am sur-

prised at the size of Mainz. It is growing like a green bay tree, and

It is situated where the Main flows into the Rhine, and gets the traffic of

It was so rich in the past that it was called "Golden Mainz." and it was at one time the leader of the league of Rhenish towns formed during the middle ages to boom the trade of this region.

To-day it is overshadowed by Frankfort. but it has an increasing trade.

Mannheim still further up the Rhine, at parts of the valley, the mouth of the Nectar, might be called The land is so rough that all cultivation an American trade center.

It has enormous imports of American grain, coal oil and tobacco, and is the head-quarters for the transshipment of American The Diamond Match Company, the Stand-ard Oil Company and the Pure Oil Company have plants there and our leading exporters

of all kinds have their agencies. Mannheim is the head of Rhine naviga-tion for large boats and the chief point of distribution for grain, cotton, coal oil, lum-

Over sixteen thousand boats unload at its cks every year and its freight runs up

It is not the foreign travel, nowever, | chemicals, corks and cars, beer and glass bottles, agricultural implements, planos, commun butter, eights and a score of

That is enormous, it is true, but it is nothing in comparison with the local tradic. The Rhine is one almost continuous village. There are towns everywher near the river and back from it, except in the most mountainous parts and on the holidays the boats are crowded, and, as the fares are chesper than those of the railroads, the everyday travel is great.

Command butter, cigars and a score of the rails of the most it is analine dye plant is the largest in the world, its exports to the United States.

Let workmen in its comb and doil factories and other thousands making wood pulp, which, strange to say, it exports to the United States.

everyday travel is great.

A difference in weather makes a big difference in the profits of the companies.

It also sends us patent leather to the value of something like \$1,000,000 a year, and at the same time buys a few American tobacco and can shore. It uses American tobacco and makes millions of clars every week, which are shipped to all parts of Germany COLOGNE REBUILT SINCE

FRANCO-PRUSSIAN WAR. These Rhine towns are among the newest of the German cities.

This statement seems strange when one of the stove, crowds this at risk of burning remembers that they thrived in the days of the crusaders.
Cologne was founded about the time that
Csesar overrain Gaul.
It was so rich during the Middle Ages

ner, which costs 75 cents with reduced rates for children. Breakfast and supper are also served.

Nearly all the Rhine towns are growing and are steadily increasing that the contact and a wide street, paved with asphalt, with trees in the center and also served.

Raine is spotted with towns and cities.

It is cut by canals which lead to the send are steadily improving their port arrangements.

You see cranes on the landing places at many small towns, all the cities have what was and the whole city looks and a network of railroads leads out from it to every quarter of Europe.

Here at Cologne the Rhine is about 1.30 feet wide, and it is deep enough for boats drawing twelve feet of water. The fall is Ridges connect it with the railroads are mediated and the content.

Bare also served.

Nearly all the Rhine towns are growing and a wide street, pavel trees in the center and rideways and driverways on each side, has taken its place.

New houses have been erected along this street, and, indeed, the whole city looks as though it were put up for show.

It is only in the older sections that you find antique structures, and the Cathedrai, airhough begun centuries ago, was only completed along in the eightes. It is now the finest cathedral in Europe, and cost, all told, a little less than \$5.00,000.

The ports of Belgium have access to it and a wide street, pavel and a wide street in the center and rideways and drive-ways on each side, has taken its pace.

New houses have been crected along this street, and, indeed, the whole city looks as though a three older sections that you find antique structures, and the Cathedrai, all told, a little less than \$5.00,000.

The port at Cologne is formed by an island in the river. This has been wailed in with great stone blocks and paved with cobles.

Bridges connect it with the

grown up under the shadows of mediaeva

The Rhine cities are new in their systems There are customhouses on the island, of government. Municipal ownership is with bonded warehouses, and the facilities are such that scores of barges and boats. There is much city pride, and but little.

boodling.

Dusseldorf owns its own sas and electric a barge unloading South Carolina pine. The light plants, it has public bathhouses, where boards were built out over the sides of the barge so that it seemed to be a pile of lumber a hundred feet wide, two hundred feet long and ten feet high.

Dissender owns its own ress and electric light plants, it has public bathhouses, where boards were built out over the sides of the boards were built plants of the light plants. It has public bathhouses, where boards were built out over the sides of the light plants, it has public bathhouses, where light plants is the public bathhouses, where light plants are some control of the light plants.

pawnbroking attachment, and also homes for the aged and those who are too feeble

United States and the accommodation equally good.

My carriare cost me about \$5 a month, or

\$50 a year, while at home in Washington. In Dusseldorf i could have the same for just ANNUAL PASS COST ONLY 230.

Here in Cologne one can buy a yearly pas good on all lines for \$30, monthly passes are sold for \$2.38 and the ordinary fare for the longest distance is 314 cents, while th test distance costs less than 24 cents cents, and students attending educational institutions have commutation tickets for 11-5 cents. The chief advantage that the

railroads here have over those at home is in the lower wages for motormen and other employes, for coal, steel rails and car equipments must cost about the same.

As to wages, motormen receive \$3 cents
and conductors about 72 cents for a day of
ten hours, and other employes are proportionately cheap.

It is wonderful how the Rhine valley is cultivated. For the greater part of the dis-

very hilly, but every inch of available space The mountains are terraced in places, the earth being held in with walls of stones, and some of it, I am told, carried up from the lowlands on the backs of women and men. Some of the patches are no larger than a bed quilt, and a field a yard wide will run a long distance around a hill or

up a mountain.

This is especially so in the vine-growing regions, which are in the most mountainous must be with the hoe or the spade, and hence back breaking. The grapes are planted in rows running up and down hill.

planted in rows running up and down hill.

Each vine has its own stake, and it is cut down to a central stem or stump every year. All along the river under such vineyards are little towns of one or two-story houses, with roofs of slate or tiles.

There are no houses in the vineyards, the most characteristic buildings being the white stone castles high up on the sides of the mountains. of the mountains

The soil is carefully handled. It is fer-tilized and so treated that although it has been producing for centuries it still yields abundantiv.

THE GAS BILLS.

Ex-Reader of Meters Gives

WRITTEN FOR THE SUNDAY REPUBLIC. According to one authority, nine out of ten families are paying from 15 to 20 per cent more for gas than they need to pay. No sacrifice either of efficient lighting or

Advice to Householders.

of heating is involved by the saving. To follow certain expert advice, based on number of simple laws, is all that is nec-"In these days, when no flat and no apart-

ment is up-to-date unless provided with a gas cooking range, there is more waste of gas than ever was before," said a former meter reader. "I don't mean to preach about careless-

ness or any obvious fault on the part of a wasteful cook. I'll just give you a few bits of advice, and when you hear the end you'll admit it takes more to run a gas cooking range properly than you ever dreamed of, "Here is an experiment which you can try for yourself, and it's the keynote of success in handling a gas cooking range or any

other range artistically. "Take two cooking pots of equal size and make. Into each put an equal amount of water. Into the water in each pot place a leg of mutton-having each leg of the same weight and, if possible, from the same cheep, so as to assure there is no difference in the quality of the meat.

"Place cach pot over a burner on your gas cooking range, and when the water has seen brought to a boil leave one burner blazing away full tilt and turn off the other half way, so that the water in the pot over t just botts, and no more. You will find that both pieces of meat are equally cooked after the same lapse of time, even though the one has burned twice as much gas as the other during the period of boiling. The same experiment you can try with eggs or any other entable, and the reason is selfevident.

"No man ever managed to heat water nore than 212 degrees Fahrenheit. That is the bolling point of water, and if Vesuvius in eruption were under your pot of mutton he would do no more than heat that water to the boiling point, after which it passes off into steam. Therefore, a flame just enough to heat a cooking not or an oven is what is needed, and no more.

"Another waste which few cooks think of in using a gas stove is in heating considerably more of a liquid than is needed. Somehow it is hard to get the old habits of the burn-all-day-anyway coal range out of the minds of cooks.

"A woman wants to make one or two cups of coffee. Watch the average artist as she goes about !". The tea kettle is filled to she goes about I. The lea kettle is filled to the brim with water. Had the kettle been filled one-third there would have been enough and to spare of hot water to make the coffee. As it is, the cook waits three times as long for the water to come to a bell and she burns three times as much gas as is necessary.

"There is still another important point of which few think in handling a modern range. A cock has finished a number of dishes and finds she needs to keep them warm while meat is broiling.

"There is the coffee, for instance, made and awaiting only the

and awaiting only the turn of the ment be-fore it is to be served. Similarly, say, corn and a rot of neas. "In nine cases out of ten it never strikes

the manipulator that the oven of the gas range is heated as a metter of course, and. incidentally, to the broiling down below "She does not recall that the oven, there-fore, is the proper place to keep these things warm, but she lights burners on top

"Anywhere from 10 to 20 per cent of you

tilt again when he pays his periodical visit. Maybe you don't fully appreciate the saving of gas you can accomplish by this simple means. Try for yourself, and you'll find you can turn off this valve anywhere from one-third to one-half and still retain exactly as much light and as much heating ovactly as much ught and as much meaning power as you had with the valve wide open. "It may not be saying something that most people do not know, but it is saying

that no gas jet should burn with a racged flame and that no gas burner on a range ought to burn with a yellow flame. "It's an easy thing to turn off the gas pressure properly. as described, and you might as well have a thing right as wrong, aside from the fun of practically throwing money out of the window at your gas com-

"Still another expenditure that persons do not appreciate is that of having a light burn low all night.

"'Might as well have it. It's convenient

in the hall, you hear remark, or 'It costs only 2 cents to burn it all night.' "But 2 cents times thirty are 60 cents, and if there are two such burners in every household the amount foots up to \$1.20, just about one-quarter of the sum total which the average gas consumer has to pay every

"Try my advice just for a month and you'll become interested in lopping off fig-ures from your gas bill. It's a lot of satisdone, especially when-well, everybody looks at money paid for gas as money thrown into the street, more or less.

A Tennyson Anecdote.

In his reminiscences, Charles Brookfield he retired English actor, says: "My father was dining in London on night at the Oxford and Cambridge Club with Tennyson and two or three others. "After dinner the poet insisted on putting

his feet on the table, tilting back his chair 'more Americano.' There were strangers in the room, and he was expostulated with for his uncouthness, but in vain. "'Do put down your feet!' pleaded his

host. Why should I? retorted Tennyson 'I'm very comfortable as I am.' 'Every one's staring at you," said another. " 'Let 'em stare,' replied the poet, placidly 'Alfred,' said my father, 'people will think you're Longfellow.' Down went the feet.' -Argonaut

pany name on the head band naturally arouses one's curiosity as to what it is anycording to the meason, for sometimes the WAY. crop is short, causing a general rise, WHERE THE JOHANNESBERGER its existence it has been drawn over the WINES ARE PRODUCED.

rails of every line of any importance in the United States, Canada and Mexico, and as One of the best wine regions is that of the Rheingau, which runs for about fifteen a result it has made thousands of rolls of miles along the river.

It is here that the Johannesberger wines records for railway companies, on which is shown the exact condition of roadbed. They come from about fifty-five acres of rails and sleepers at the date the car passed

riney come from about nity-ave acres or vineyards, being made from the best grapes raised on that area.

The idea prevails in the United States that the Germans drink only beer. This is not true. They consume vast quantities of wine, and their wines, on the average,

rants, and many hotels have their wine

restaurants and beer restaurants side by side. The difference is that anything or-dered in the wine restaurant costs considconveniences of the well-equipped home. tor and Mrs. Dudley have made many erably more than the same thing in the friends all over this continent, and on sev beer restaurant.

Even beer costs more if taken in the were surprised to find their names and work

costs more if taken in the costs more if taken in the acts. The people often drink ants. The people often drink heir meals, and it is a comber carry wine along with a lunch carry wine along with a lunch is and old, and no one thinks ange of children drinking it alone teacher bring thirty children and she is quite capable of the car and she is quite capable of the carbon the carbon the carbon to the form the actual mechanism of the car and machine, Doctor Dudley has inthis country who have taken the degree of civil engineer, and she is quite capable of thandling the dynagraph car under ordinary restaurant the other day.

I dinner for them, and each is glass of beer.

FRANK G. CARPENTER.

Are leading the dynagraph car under ordinary conditions, and is frequently Doctor Dudley over the car and directly over polished strip of bronze a record so fine that these irregularities in the track, as it often shrings back into apparently perfect condition apparently perfe wine restaurants. The people often drink were surprised wine with their meals, and it is a common thing to carry wine along with a lunch ling circles. on the cars.
As to beer, it takes the place of water among young and old, and no one thinks anything strange of children drinking it. I saw a school teacher bring thirty children into a restaurant the other day.

He ordered dinner for them, and each had her pint glass of beer.

FRANK G. CARPENTER.

Also beer, it takes the degree of water with the country who have taken the degree of the current expression in the country who have taken the degree of civil engineer, and she is quite capable of handling the dynagraph car under ordinary conditions, and is frequently Doctor Dudley's assistant when on an inspection tour.

At one end of the car and directly over

ELEANOR ROBSON WILL PLAY JULIET 10 © TO THE ROMEO OF KYRLE BELLEW.

Group of Famous Actors Are to Revive the Love Drama in St. Louis This Week www.



ELEANOR ROBSON AS JULIET.

(From Photographs taken in New York by Burr McIntosh and Sarony.) To be prejudged worthy to play Juliet

to the Romeo of Kyrle Bellew, the Friar Laurence of W. H. Thompson and the Mer-cutio of Eben Plympton is perhaps the proudest achievement of Miss Robson's career. She will be seen in the part in the forthcoming revival of this classic. Miss Robson made her first appearance at Miss Robson made her first appearance at the California Theater, San Franciso, with the Trawley Stock Company, Soptember 11. 1897. She played upon that occasion the part of Margery Knox in "Men and Worker."

Soon afterward she joined the Sal shury Stock Company at the Davidson Theater, Milwaukee, where she appeared for a year, uninterruptedly.

WIZARD, AND HIS

tance in the United States, Mex-

WRITTEN FOR THE SUNDAY REPUBLIC

tor P. H. Dudley conceived the idea of mak-

ing a mechanical device for inspecting, re-

cording and reg stering the condition of rail-

tances apart makes it seem different from a

The absence of doors renders it unfit for

baggage car and the lack of a railroad com-

During the last quarter of a century of

From a mechanical and scientific stand-

point it is one of the most interesting cars

on wheels, and apart from its engineering

feats it has social attractions as well, for

one end is comfortably furnished for living,

containing a grand plane, a bookcase, large

couch banked up with sofa pillows and other

During their years of travel both the doc

DOCTOR DUDLEY, RAILWAY

ico and Canada.

travel on it.

passenger coach.

over them.

The summer of '99 she was a member of the stock company at Elitch's Garden in Lavender in "Sweet Lavender." Kitty Ives Denver, Colo., and immediately after her engagement there she joined the "Arizona" company at the Grand Opera-house, Chisan in "Held by the Enemy."

cago.

During her stock-company experience of Miss Robson was schooled in the popular of dramas of the day, and by playing many parts she found the true direction of her talents. Her best successes were made in

cated, and by means of a vertical shaft extending down through the floor of the car

it is connected with an axle. By this means the speed of the car regulates the speed of the machine, as well as propels it, which for good record work should be at the rate of wenty miles an hour behind a heavy engine and preferably at the rear of a train of

The dynagraph somewhat resembles a cylinder printing press, and when in action In the Last Ouarter of a Century the motion is very similar. At one end of the machine, over a large It Has Been Drawn Over the Rails of Every Line of Impor-

spool, a roll of paper is fed into the apparaus automatically by the speed of the car. This paper is especially made for the machine, and is ruled with fine lines at certain distances apart, so the record pens can leave their impression in an intelligible manner. At the top of the macidne several arms extend out over the paper, and at the end

dropped by an assistant as the lines con-These arms are operated on by electricity. object in view he had a car constructed that , which regulates their movements accurately

and quickly. would contain the necessary mechanism When the car is in motion it requires three while at the same time he could live and persons to properly operate the mechanical At certain seasons of the year this car and technical matters. One keeps the pens filled, watches the arms and keeps an eye may be seen in the yards of the Grand Central Station, New York, where, to the to the mechanical part of the dynagraph, casual observer, it appears to be an ordi- Another watches the record sheet, marks nary Pullman car out of service.

The lack of many windows at regular disthe localities of bridges, mile posts or other facts to be noted, which are called out by

the lookout at the window. SHARP-EYED LOOKOUT. The third person is stationed at the wininterest along the line can be observed. which are immediately called out and recorded on the margin of the paper and act

The object of the record is to show the

as a guide when reading a record.

condition of roadbed, track and other points that are necessary in keeping a road in proper repair and in shape to avoid accident save wear and tear on rolling stock, as wel as to show where, by repairing a roadbed or track, it can be kept in good condition.

Another wonderful contrivance in connection with this car is the low-point marker. This is an electric and pneumatic device, which automatically paints the side of a rail as the car passes over it where a deflection is recorded by the dynsgraph.

A section boss going along after the car has passed can see where the track sags or is deflected by the indicated point marks, and can then have the track and ties lined up.

If, however, it were not for the dynagraph car it would be almost impossible to find these irregularities in the track, as it often springs back into apparently perfect conditions.

The storm of the first of next for the territory coefficient of the American border line and competing senerally within the States of Washington, Unaho and Oregon, which is as yet unexplored by the archaeologist.

Mr. Buith thinks he has determined pretty clearly the possibilities for his investigations, covers and can then have the track and ties lined up.

If, however, it were not for the dynagraph car it would be almost impossible to find these irregularities in the track, as it often springs back into apparently perfect condior track, it can be kept in good cor

In "Arizona" she was attractive in the role of Bonita, which she played with delightful girlishness.
This was her first New York hit.

parts she found the true direction of her talents. Her best successes were made in sympathetic roles.

Among the characters which she impersonated most worthily were Sue, in the play of that name; Carey in "Alabama." Bess Van Buren in "The Charity Ball," Mag in "Lady Bountiful," Hazel Kirke in the play of that name, Fanchon in the play of that

a powerful microscope is required to read to It would hardly seem possible that a heavy steel rall would spring perceptibly in such a short space as between sleepers, and were it not for this instrument it would be impossible to say it does, but with the impossible to say it does, but with the streumatograph and microscope the monundred-thousandth of an inch can be recorded and inspected when a one-hundred-ton engine is running over the rails.

Another instrument will measure the distictly of a rail at full length, and rails are often tested by Doctor Dudley in the Grand Control years.

Central yards, where there are two piers built especially for this work, and midway between them against the wall to arranged

By this instrument and process many ap-parently good rails are rejected yearly by the best roads, as they have to stand the test for both specific gravity and elasticity before they are laid on any first-class rail-

INDIANS OF SIX CENTURIES AGO.

Harlan Smith's Discoveries in British Columbia-Results of Archaeological Explorations Embraced in the Jesup North Pacific Expedition.

WRITTEN FOR THE SUNDAY REPUBLIC WRITTEN FOR THE SUNDAY REPUBLIC

The archaeological exploration undertale
en in 187 under the general scheme exbraced in the Jesup North Pacific Expedition has been completed, in so far as it
extends to Lower British Columbia tertitory, and the research will now be extended shortly to the State of Washington,
thence to be determined according to developments.

If in recorded these states of the states of the

relopments.
It is expected that Harian L Sr the American Museum of Natural History will set out the latter part of this mostle or the first of next for the territory south